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(तीसरा पुनरीक्षण)

Fertilizer Trade and Industry — Glossary of Terms

(Third Revision)

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Soil Quality and Fertilizers Sectional Committee, FAD 07

FOREWORD

This Indian Standard (Third Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Soil Quality and Fertilizers Sectional Committee had been approved by the Food and Agriculture Division Council.

This standard was first published in 1958 and subsequently revised in 1963 and 1980. This revision has being undertaken chiefly to cover the technical definitions of most of terms, however, it may not necessarily include all the legal meanings of the terms. In this revision number of new definitions added, such as Additives, Bio fertilizers, Coated Fertilizers, Controller, Dealer, Humus, Peat, Organic Fertilizers, Prill, Reduced sample, retailer/retail dealer, Wholesale dealer, Semi-organic fertilizer and solubility of fertilizers.

Should any inconsistency exist between the terms as defined in this standard and those defined in standards for individual materials, the latter shall prevail.

Committee responsible for the formulation of this standard is given at Annex A.

In the preparation of this standard, due consideration has been given to *Fertilizer* (*Control*) *Order*, 1957, *Standards of Weights and Measures Act*, 1977 and the *Essential Commodities Act,* 1955 of Government of India. However, this standard is subject to restrictions imposed under these, wherever applicable.

Indian Standard

FERTILIZER TRADE AND INDUSTRY — GLOSSARY OF TERMS

(Third Revision)

1 SCOPE

This standard defines the terms widely used in the fertilizer trade and industry in this country.

2 REFERENCES

The standards listed below contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of these standards:

IS No.	*Title*
460	Test Sieves — Specification
(Part 1) : 2020	Wire Cloth Test Sieves (*fourth revision*)
(Part 2) : 2020	Perforated Plate Test Sieves (*fourth revision*)
(Part 3) : 2020	Methods of Examination of Apertures of Test Sieves (*fourth revision*)

3 TERMINOLOGY

For the purpose of this standard the following terms shall apply.

3.1 Acid Forming Fertilizer — A fertilizer capable of increasing the residual acidity or reducing the residual alkalinity of the soil.

3.2 Activated Sludge — A material made from sewage, freed from grit and coarse solids, and aerated intensively. The resulting flocculated organic matter is withdrawn from the tanks, filtered with or without the aid of coagulants, dried, ground and screened (*see also* **3.132**).

3.3 Additive — A Substance intended to improve the properties of a fertilizer or soil conditioner.

3.4 Agricultural Liming Material — A Material containing oxides and/or carbonates and/or hydroxide of calcium and/or magnesium, used for neutralizing the acidity of the soil.

3.5 Air-Slaked Lime — A product composed of various proportions of the oxide, hydroxide and carbonate of calcium or of calcium and magnesium, and derived from exposure of quick lime.

3.6 Alkaline (or Basic) Fertilizer — A fertilizer capable of increasing the residual alkalinity or reducing the residual acidity of the soil.

3.7 Ammonia (Liquid, Anhydrous) (NH_3) — A material mostly produced by the synthetic process and obtained in the liquid form. It is used in the fertilizer industry extensively for the manufacture of urea, for ammoniation of superphosphate, in making base mixtures, in making mixed fertilizers, or for conversion into salts like sulphate, phosphate, chloride, nitrate, etc. It is also applied directly into the soil by suitable mechanical means. Fertilizer grade anhydrous ammonia contains about 82 percent of nitrogen by mass.

3.8 Ammonia, Liquor (Aqua Ammonia) (NH_4OH) — A solution obtained by absorbing ammonia in water. The solution is strongly alkaline and is made in various strengths for ammoniation purposes generally containing not less than 20 percent of ammonia by mass.

3.9 Ammoniated Superphosphate — A product obtained from super-phosphate when it is treated with ammonia or solutions containing free ammonia.

3.10 Ammoniating Solution (Nitrogen Solution) — A solution used for ammoniating superphosphate or a mixture of superphosphate with other fertilizers. This solution may be liquor ammonia itself or a solution of ammonium nitrate or urea in liquor ammonia.

3.11 Ammonium Chloride (Sal Ammoniac or Muriate of Ammonia) (NH_4Cl) — Ammonium salt of hydrochloric acid containing not less than 25 percent of nitrogen in ammoniacal form.

3.12 Ammonium Nitrate (Nitrate of Ammonia) (NH_4NO_3) — A product obtained by neutralizing nitric acid with gaseous ammonia. It is usually in a granular or prilled form and coated with a suitable material to prevent absorption of moisture and caking in storage. Pure ammonium nitrate has a total nitrogen content of about 35 percent, of which one-half is present as ammoniacal nitrogen and the other half as nitrate nitrogen. Due to the addition of conditioning agents applied in commercial practice, the nitrogen content is reduced.

3.13 Ammonium Phosphate — Two important ammonium phosphates are:

a) Mono-Ammonium Phosphate ($NH_4H_2PO_4$) — It contains 12.17 percent of nitrogen and 61.7 percent of phosphoric acid (as P_2O_5), when pure. The commercial or the fertilizer grade contains about 11 percent of nitrogen and 52 percent of phosphoric acid (as P_2O_5).

b) Diammonium Phosphate [$(NH_4)_2HPO_4$] — Pure diammonium phosphate contains 21.21 percent of nitrogen and 53.76 percent of phosphoric acid (as P_2O_5). The commercial or fertilizer grade contains about 18 percent of nitrogen and about 46 percent of phosphoric acid (as P_2O_5).

3.14 Ammonium Phosphate Sulphate — A material produced by neutralizing a mixture of phosphoric acid and sulphuric acid with ammonia.

3.15 Ammonium Sulphate (Sulphate of Ammonia) [$(NH_4)_2SO_4$] — Ammonium salt of sulphuric acid containing not less than 20.6 percent of nitrogen in ammoniacal form.

3.16 Ammonium Sulphate Nitrate — A double salt of ammonium sulphate and ammonium nitrate containing not less than 26 percent nitrogen of which about one-fourth is in the nitrate form and three-fourths in the ammoniacal form.

3.17 Analysis — As applied to fertilizers, it shall designate the percentage composition of the product expressed in terms which the existing trade practice and laws require and permit.

3.18 Anhydrous Ammonia — See **3.7**.

3.19 Aqua Ammonia — See **3.8**.

3.20 Available Phosphoric Acid — The sum of the water-soluble and the citrate-soluble phosphoric acid (as P_2O_5) in a fertilizer, except for bone meal and basic slag in which the amount of phosphoric acid (as P_2O_5) soluble in a two percent citric acid solution is considered available.

3.21 Basic Fertilizer — See **3.8**.

3.22 Basic Slag — A by-product in the manufacture of steel from phosphatic iron ores. The product is finely ground to prescribed size and shall contain no admixture of materials other than what result in the original process of manufacture.

3.23 Biofertilizers — It means the product containing carrier based (solid or liquid) living microorganism which are agriculturally useful in terms of nitrogen fixation, phosphorus solubilisation or nutrient mobilization, to increase the productivity of the soil and/or crop.

3.24 Bone Ash — A product obtained by burning off bones to ash. The material contains 30 to 40 percent phosphoric acid (as P_2O_5).

3.25 Bone Black (Bone Char) — A product obtained by heating bones in closed retorts. This is used for clarifying sugarcane juice and the spent material is used as phosphatic fertilizer. It may contain one to two percent of nitrogen and 30 to 35 percent of phosphoric acid (as P_2O_5).

3.26 Bone Meal, Raw — A by-product of the bone crushing industry and consists of ground bones. It contains at least 3 percent nitrogen, and at least 20 percent total phosphoric acid (as P_2O_5) of which not less than 8 percent is available phosphoric acid (as P_2O_5).

3.27 Bone Meal, Steamed — A product obtained by subjecting bones to the action of steam under pressure. A major portion of glue and gelatinous material is extracted and the bones are then easily ground to a fine meal. It contains at least 22 percent of total phosphoric acid (as P_2O_5) of which not less than 16 percent is available phosphoric acid (as P_2O_5).

3.28 Bone Superphosphate — See **3.53**.

3.29 Bone Tankage — A product obtained by processing bones along with a smaller proportion of meat of carcasses, with steam under pressure. It may contain 3 to 10 percent of nitrogen and 7 to 20 percent of phosphoric acid (as P_2O_5).

3.30 Bulk Fertilizer — A Commercial fertilizer supplied in solid or liquid form, in a non-packaged form (to which a label cannot be attached).

3.31 Burnt Lime — *See* **3.125**.

3.32 Calcium Ammonium Nitrate — A mixture of ammonium nitrate and finely pulverized limestone or dolomite. It contains not less than 25 percent of nitrogen, half-of which is in the form of ammoniacal nitrogen and the other half in the form of nitrate nitrogen.

3.33 Calcium Carbonate ($CaCO_3$) — A common naturally occurring substance in the form of limestone, marble, shells, etc. Precipitated calcium carbonate is also obtained as a by-product of certain industries, when finely ground, it is valuable for application to the soil to neutralize soil acidity. It is also used as an ingredient in mixed fertilizers to render them non-acid-forming.

3.34 Calcium Cyanamide (Cyanamide) ($CaCN_2$) — A commercial product consisting principally of calcium cyanamide and carbon. It contains not less than 20 percent of nitrogen. The nitrogen in this product is in the form of synthetic, non-protein nitrogen.

3.35 Calcium Metaphosphate [$Ca(PO_3)_2$] — A product obtained by tearing phosphate rock with gaseous phosphorus pentoxide (as P_2O_5) at high temperature.

3.36 Ca, Mg, S-Fertilizers — Fertilizers not included in groups nitrogenous, phosphatic, potassic, NP, NK, PK, NPK, but contain one or more of the elements Ca, Mg, S and of which the principal function is the supply of plant food.

3.37 Calcium Nitrate [($Ca(NO_3)_2$] — The calcium salt of nitric acid. It is a source of nitrate form of nitrogen and of water-soluble calcium. The commercial product contains about 15 percent nitrogen and 28 percent total lime (CaO).

3.38 Caustic Lime — *See* **3.125**.

3.39 Chilean Nitrate of Soda (Chile Saltpetre) — A product obtained by refining the crude nitrate deposits found in Chile and containing about 99 percent sodium nitrate (*see also* **3.98**).

3.40 Citrate Soluble Phosphoric Acid — It is that part of the total phosphoric acid (as P_2O_5) in a fertilizer that is insoluble in water but soluble in neutral 1 N ammonium citrate solution at 65 °C.

3.41 Citric Acid Soluble Phosphoric Acid — It is that part of the total phosphoric acid (as P_2O_5) particularly in basic slag and bone meal that is insoluble in water but soluble in 2 percent citric acid solution.

3.42 Coated Fertilizer — A fertilizer, the granules of which are covered with a thin layer of a different material in order to improve the behaviour and/or layer of a different material in order to improve the behaviour and/or modify the characteristics of the fertilizer.

3.43 Complete Fertilizer — A product obtained by mixing different fertilizer stock materials, containing three major plant nutrients, namely, nitrogen, phosphoric acid and potash (*see also* **3.65**).

3.44 Complex, Fertilizer — A granulated fertilizer containing more than one major plant nutrient in a pre-determined ratio in the manufacture of which chemical reactions are involved. The individual elements may be present in more than one form.

3.45 Compost — A product obtained by the controlled decomposition of organic wastes.

3.46 Compound Fertilizer — A chemical compound which contains more than one major plant nutrient elements.

3.47 Controller — A person appointed as Controller of Fertilizer by the Central Government and other person empowered by the Central Government to exercise or perform all or any of the powers, or as the case may be, functions of the Controller under this order.

3.48 Curing of Fertilizers — In the case of certain fertilizers and fertilizer mixtures, if the materials are mixed and immediately bagged, the fertilizers would become caked or set hard as a result of various chemical reactions taking place. It requires weeks and frequently months for these reactions to be completed and during this time most of the water combines with materials like gypsum and crystallized compounds are formed. However, the manufacturer usually prepares the mixtures well in advance and allows these chemical reactions to take place in the storage heap in the factory. This is known as 'curing', when the fertilizer is finally powdered and bagged, it should retain the good physical condition suitable for distribution.

3.49 Cyanamide — *See* **3.34**.

3.50 Diammonium Phosphate — *See* **3.13**.

3.51 Dealer — A person carrying the business of selling fertilizers whether wholesale or retail or industrial use and includes a manufacturer, importer and a pool handling agency carrying on such business and the agents of such person, manufacturer, importer or pool handling agency.

3.52 Dicalcium Phosphate ($CaHPO_4$) — A product containing not less than 34 percent of available phosphoric acid in citrate soluble form, which is considered available to plants.

3.53 Dissolved Bone — A ground bone or bone meal that has been treated with sulphuric acid. It is commonly known as 'Bone Superphosphate' and contains one to two percent nitrogen and 16 percent total phosphoric acid (as P_2O_5) of which about 8 percent is water-soluble.

3.54 Dolomite — A mineral composed chiefly of carbonates of calcium and magnesium in substantially equimolar proportions.

3.55 Double Sulphate of Potash and Magaesia — A commercial product containing not less than 21 percent of potassium oxide, not less than 53 percent of sulphate of magnesia and not more than 2.5 percent of chlorine.

3.56 Dried Blood — The collected blood of slaughtered animals, dried and ground, and containing 9 to 14 percent nitrogen in organic form.

3.57 Equivalent Acidity — The number of parts by mass of calcium carbonate (as $CaCO_3$) required to neutralize the acidity resulting from the use of 100 parts by mass of the fertilizer.

3.58 Equivalent Basicity — The number of parts by mass of calcium carbonate (as $CaCO_3$) that corresponds in acid-neutralizing capacity to 100 parts by mass of the fertilizer.

3.59 Fertilizer — A material, organic or inorganic, natural or synthetic which supplies one or more of the chemical elements required for the plant growth.

3.60 Fertilizers (Inorganic) — A fertilizer in which the declared nutrients are as mineral or inorganic chemicals obtained by extraction and/or by physical and/or chemical industrial processes.

3.61 Fertilizers (Organic) — These are carbonaceous products generally of biological origin added to the soil specifically for the nutrition of plant.

3.62 Fertilizer Conditioners — The materials which are added to fertilizers to control free moisture and keep the fertilizer free-flowing by helping to prevent caking.

3.63 Fertilizer Formula — It expresses the quantity and grade of the stock materials used in making a fertilizer mixture, for example, 400 kg of superphosphate containing 16 percent water-soluble phosphoric add (as P_2O_5), 400 kg of ammonium sulphate containing 20.6 percent nitrogen and 200 kg of muriate of potash containing 60 percent potash (as K_2O).

3.64 Fertilizer Grade — It represents the minimum guarantee of its plant food expressed in terms of percentage of nitrogen (as N), phosphoric acid (as P_2O_5) and potash (as K_2O).

3.65 Fertilizer Mixture — A product obtained by mixing different fertilizer stock materials and containing more than one of the three plant nutrients, namely, nitrogen, phosphoric acid and potash (*see also* **3.43**).

3.66 Filler — Any material mixed with fertilizers for any purpose other than the addition of available plant food, such as to facilitate granulation, for imparting anti-caking properties, to impart physical strength to granules and to adjust the nutrient percentage to the guaranteed levels.

3.67 Finely Ground — It refers to actual size of particles as determined by the use of standard sieves. Seventy percent or more of the material should pass through 150 micron IS Sieve [*see* IS 460 (Part 1) to (Part 3)] and 90 percent or more should pass through 300 micron IS Sieve.

3.68 Fish Manure — A product consisting of largely non-edible fish that have been used for other commercial purposes, either ground or unground. It may contain 4 to 8 percent nitrogen and 4 to 8 percent phosphoric acid (as P_2O_5).

3.69 Fused Calcium and Magnesium Phosphate — A product derived from the fusion of rock phosphate with approximately 30 percent of magnesium oxide as such or as a mineral silicate. Its fineness and available phosphoric acid content shall be up to the accepted standards.

3.70 Fused Tricalcium Phosphate — A product composed chiefly of the alpha form of the compound represented by the formula $Ca_3(PO_4)_2$. It is obtained when rock phosphate containing 5 to 10 percent silica is fused and the melt quenched. Its fineness and content of available phosphoric acid shall be up to the accepted standards.

3.71 Garbage Tankage — A product obtained by treating waste household food materials with steam under pressure, drying and grinding.

3.72 Granulated Fertilizer — A fertilizer which has been made into particles of approximately uniform size, ranging in diameter from 1 to 4 mm.

3.73 Granulated Mixture — A mixture of fertilizers made by intimately mixing two or more fertilizers with or without inert material, and granulating them together, without involving any chemical reaction.

3.74 Ground Limestone — It is the product obtained by grinding either calcareous or dolomitic limestone to a fineness so that all the ground product passes through 1.70 mm IS Sieve.

3.75 Ground Phosphate Rock — Material obtained by grinding naturally occurring phosphate rock to a fineness so that 90 percent of it passes through l50 micron IS Sieve.

3.76 Guano — It includes many materials which vary in source, composition and readiness for use. It may mean,

a) bat guano found in caves;

b) Peruvian guano – the accumulated excrement of sea birds found in Peruvian coast;

c) fish guano, whale guano, sheep guano, goat guano; and

d) phosphatic guano of various kinds.

The nitrogen content varies from 0.4 to 9.0 percent and total phosphoric acid (as P_2O_5) from 12 to 26 percent.

3.77 Gypsum — A hydrated calcium sulphate ($CaSO_4.2H_2O$). The commercial material contains varying amounts of impurities and is used as a soil amendment.

3.78 High Analysis Fertilizer — A fertilizer containing not less than 25 percent of the major plant nutrients, namely, nitrogen, phosphoric acid (as P_2O_5) and potash (as K_2O).

3.79 Hoof or Horn Meal — A product resulting from processing, drying and grinding of hoofs and horns and containing 13 to 15 percent nitrogen.

3.80 Humus — A term used for defining stable fractions of the soil evolved from organic materials therein.

3.81 Inorganic Fertilizer — *See* **3.60**.

3.82 Kainite — A natural impure mixture of potassium and sodium chlorides; sometimes containing sulphate of magnesia, with not less than 12 percent of potash (as K_2O).

3.83 Kotka Phosphate — A product obtained by partial acidulation of ground rock phosphate with sulphuric acid and containing not less than 16 percent of available phosphoric acid (as P_2O_5) of which at least 8 percent is water-soluble.

3.84 Liquid Ammonia — *See* **3.7**.

3.85 Liquid Fertilizer — This term includes anhydrous ammonia, ammoniating solutions and liquid mixed fertilizers. The principal materials used in making liquid fertilizers are ammonia, urea, phosphoric acid, nitric acid and potassium chloride.

3.86 Liquid Manure — A liquid arising from animal urine and litter juices or from a dung heap.

3.87 Liming Material — A product containing one or both of the elements calcium and magnesium, generally in the form of an oxide, hydroxide or carbonate, principally intended to maintain or raise the *p*H of soil.

3.88 Magnesia (Magnesium) (MgO) — A product consisting chiefly of the oxide of magnesium.

3.89 Major Fertilizer Elements (Primary Plant Nutrients) — These elements are nitrogen, phosphorus and potassium.

3.90 Manure — It is substance that is added to the soil to increase its fertility and for enhancing plant growth.

3.91 Meat meal — A product obtained by processing meat waste from carcasses. It contains 9 to 11 percent nitrogen in organic form.

3.92 Micro-Nutrients — *See* **3.147**.

3.93 Mixed Fertilizer — A product which contains two or more fertilizer materials, mechanically or otherwise physically well mixed such that they contain and supply two or more major plant nutrient elements (*see also* **3.65**).

3.94 Mono-ammonium Phosphate — *See* **3.13**.

3.95 Muriate of Ammonia — *See* **3.11**.

3.96 Muriate of Potash (KCl) — The potassium salt of hydrochloric acid.

3.97 Nitrate of Ammonia — *See* **3.12**.

3.98 Nitrate of Soda (Sodium Nitrate) ($NaNO_3$) — The sodium salt of nitric acid containing about 16 percent nitrogen (*see also* **3.39**).

3.99 Nitrate of Soda and Potash — It is chiefly sodium and potassium salt nitric acid and contains not less than 15 percent of nitrate nitrogen and 10 percent of potash (as K_2O).

3.100 Nitrogen Activity — It indicates how readily the nitrogen in a fertilizer or manure would become available to plants after application to soil. It, therefore, offers a qualitative distinction between slow and quick acting nitrogenous fertilizers and manures.

3.101 Nitrogen Fertilizer (Inorganic) — It contains nitrogen and may contain other elements but not declared amounts of P_2O_5 and/or K_2O.

3.102 Nitrogen Fertilizer (Organic) — It contains nitrogen associated with carbon.

3.103 Nitrogen Solution — *See* **3.10**.

3.104 Nitrophosphates — The products obtained by treatment of phosphate rock with nitric acid alone or in admixture with sulphuric or phosphoric acid, with or without subsequent treatment with ammonia.

3.105 NK-Fertilizers — Those fertilizers which contain nitrogen and potassium and may contain other elements but not declared amount of P_2O_5.

3.106 Non-Acid-Forming Fertilizer — A fertilizer not capable of increasing the residual acidity or reducing the residual alkalinity of the soil.

3.107 NP-Fertilizers — Those Fertilizers contain nitrogen and phosphorus and may contain other elements but not declared amount of K_2O.

3.108 NPK-Fertilizers — Those Fertilizers contain nitrogen, phosphorus and potassium and may contain other elements.

3.109 Oil Cake — The residue left after extraction of fatty oil from different oil seeds employed for industrial purposes. They are chiefly valued for their nitrogen content in fertilizer use and also contain phosphoric acid, potash and other elements in small proportions. The more commonly used oil cakes are Groundnut cake, Castor cake, Rape cake, Cotton seed cake, Mustard cake, Neem cake and Mahua cake. The nitrogen content in these varies from 2 to 8 percent.

3.110 Order of Terms of Plant Nutrients in Fertilizers — The order of terms of plant nutrients in fertilizers shall be nitrogen (N) first, phosphoric acid (as P_2O_5) second and potash (as K_2O) third.

3.111 Organic Fertilizer — Those substances made up of one or more unprocessed material(s) of a biological nature (plant/animal) and may include unprocessed mineral materials that have been altered through microbiological decomposition process.

3.112 Organic Nitrogenous Fertilizer — A fertilizer containing nitrogen associated with carbon.

3.113 Peat — A residual matter from plants grown and decayed in almost permanently waterlogged conditions and which may contain a limited quantity of naturally occurring mineral material.

3.114 Pelphos — It is a mixed product made from the basic slag and ground rock phosphate containing citrate and water soluble phosphate.

3.115 Phosphatic Fertilizer (Inorganic) — It contains phosphorus and may contain other elements but not declared amounts of N and K_2O.

3.116 Phosphate Rock — A natural rock containing one or more calcium phosphate minerals of sufficient purity and quantity as to permit its use directly or after concentration in the manufacture of commercial phosphatic fertilizers.

3.117 PK-Fertilizers — Those fertilizers contain phosphorus and potassium and may contain other elements but not declared amounts of N.

3.118 Potassic Fertilizers — Those fertilizers contain potassium and may contain other elements but not declared amounts of N and P_2O_5.

3.119 Potassium Metaphosphate (KPO_3) — A product composed chiefly of the crystalline compound represented by the formula KPO_3. Its fineness and content of phosphoric acid and potash shall be up to accepted standards.

3.120 Potassium Schoenite — It is hydrated double sulphate of potassium and magnesium manufactured from salt bitterns.

3.121 Powder — A solid substance in the form of very fine particle.

3.122 Precipitated Bone Phosphate — A by-product from the manufacture of glue from bones and is obtained by neutralizing the phosphoric acid of processed bone with lime. The phosphoric acid is chiefly present as dicalcium phosphate.

3.123 Prill — Granule obtained by solidification of droplets of fertilizers or by crystallization under special conditions.

3.124 Processed Tankage — A product made under steam pressure from crude inert organic nitrogenous materials, with or without the use of acid for the purpose of increasing the activity of the nitrogen.

3.125 Quick Lime (Burnt Lime, Caustic Lime, Shell Lime and Unslaked Lime) — A liming material produced by heating calcium carbonate until most of the carbon dioxide has been eliminated.

3.126 Reverted Phosphoric Acid — The part of the water-soluble phosphoric acid in a fertilizer which, as a result of some reaction, has become insoluble in water.

3.127 Reduced Sample — A representative part of the composite sample obtained by a process of reduction in such a manner that the mass approximates to that of the final (laboratory) samples.

3.128 Retailer/Retail Dealer — A dealer who sells fertilizers to farmers or plantations for agricultural use such as for fertilization of soil and increasing productivity of crops.

3.129 Sal Ammoniac — See **3.11**.

3.130 Saltpetre, Chile — See **3.130**.

3.131 Secondary Fertilizer Element (Secondary Plant Nutrients) — Calcium, magnesium and sulphur are called secondary fertilizer elements.

3.132 Sediment Sewage Sludge — Made from sewage, freed from grit, coarse solids and any floating materials and sedimented, either gravitationally or with the aid of chemical coagulants, and dried in the form of lumps, or after drying, ground and screened (*see also* **3.2**).

3.133 Semi-Organic Fertilizer — A product in which declared nutrients are of both organic and inorganic origin obtained by mixing and/or chemical combination of organic and inorganic fertilizers.

3.134 Shell Lime — See **3.125**.

3.135 Single Superphosphate — See **3.145**.

3.136 Slow Release Fertilizer — Fertilizer whose nutrients are present as a chemical compound or in a physical state such that their availability to plants is spread overtime.

3.137 Sodium Nitrate — See **3.98**.

3.138 Soil Amendment — Any substance that is added to the soil for the purpose of improving its physical or chemical character or enhancing soil productivity or promoting the growth of crops but exclusive of commercial fertilizers and farm yard manures.

3.139 Soil Conditioner (Ca, Mg, S) — A product containing one or more of the elements, Ca, Mg, S, the principal function of which is the improvement of the soil and which otherwise cannot be classed as fertilizers (*see also* **3.138**).

3.140 Solubility of a Fertilizer — The mass, in kilograms, of a fertilizer that will dissolve in 100 litre of water at a given temperature.

3.141 Solubility of a Fertilizer Nutrient — The quantity of a given nutrient which will be extracted in a specific medium under specified conditions, expressed as a percentage by mass of the fertilizer.

3.142 Straight Fertilizer — A product which contains and supplies to plants only one of the three major plant nutrient elements namely, nitrogen or phosphorus or potassium.

3.143 Sulphate of Ammonia — See **3.15**.

3.144 Sulphate of Potash (K_2SO_4) — The potassium salt of sulphuric acid.

3.145 Superphosphate (Single Superphosphate) — A commercial product obtained by treating phosphate rock with sulphuric acid and contains not less than 16 percent of water soluble phosphoric acid (as P_2O_5) along with calcium sulphate and other products of reaction. The grade of superphosphate is stipulated in terms of percent of water soluble phosphoric acid (as P_2O_5).

3.146 Suspension Fertilizer — A two-phase fertilizer in which solid particles are maintained in suspension in the aqueous phase.

3.147 Trace Elements (Micro-Nutrients) — The products which contain nutrient elements essential for living plants in relatively small quantities such as B, Mn, Fe, Zn, Cu, Mo, Co. Fertilizers containing one or more trace elements have a declared content of each of these trace elements but may not have declared content of N, P, K, etc.

3.148 Triple Superphosphate — A commercial product obtained by treating phosphate rock with phosphoric acid and contains not less than 40 percent of water soluble phosphoric (as P_2O_5).

3.149 Unit — A unit of plant food is 10 kg or one percent of 1 000 kg.

3.150 Unslaked Lime — *See* **3.125**.

3.151 Urea [CO (NH_2)$_2$] — A synthetic, non-protein organic compound, crystalline or made into granules for fertilizer use and containing not less than 46 percent of water-soluble nitrogen.

3.152 Urea Formaldehyde — Slow release nitrogenous fertilizer produced by the reaction between urea and formaldehyde. These products are mainly methylene ureas in the form NH_2-CO-($NHCH_2NHCH$)$_n$-NH_2, with low molar mass (1<n<8).

3.153 Waste Lime (By-Product Lime) — An industrial waste or by-product containing calcium or calcium and magnesium in forms that will neutralize acids. It may be designated by prefixing the name of the industry or process by which is produced, for example, gas house lime, tanner's lime. lime kiln ashes, etc.

3.154 Wholesale Dealer — A dealer who sells fertilizers otherwise than in retail for agricultural use such as for fertilization of soil and increasing productivity of crops.

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Soil Quality and Fertilizers Sectional committee, FAD 07

Organization	*Representative(s)*
Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya	Dr A. K. Singh (***Chairman***)
Bidhan Chandra Krishi Vishwavidyalaya, West Bengal	Prof B. Mandal Prof G. C. Hazra (*Alternate*)
CCS Haryana Agricultural University, Hissar	Head (Soil Science) Head (Microbiology) (*Alternate*)
Central Fertilizers Quality Control & Training Institute, Faridabad	Shri Shyam Babu, Director
Chambal Fertilizers & Chemicals Ltd, New Delhi	Dr Naresh Prasad Dr A. K. Baranwal (*Alternate*)
Cental Soil Salinity Research Institute, Karnal	Dr A. K. Rai Dr Ashim Datta
Consumer Guidance Society of India, Mumbai	Dr Sitaram Dixit
Fertilizer Association of India, New Delhi	Dr R. K. Tewatia
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